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Annual Report on Numerical Study of Emergent magnetic particles in Rare earth magnets

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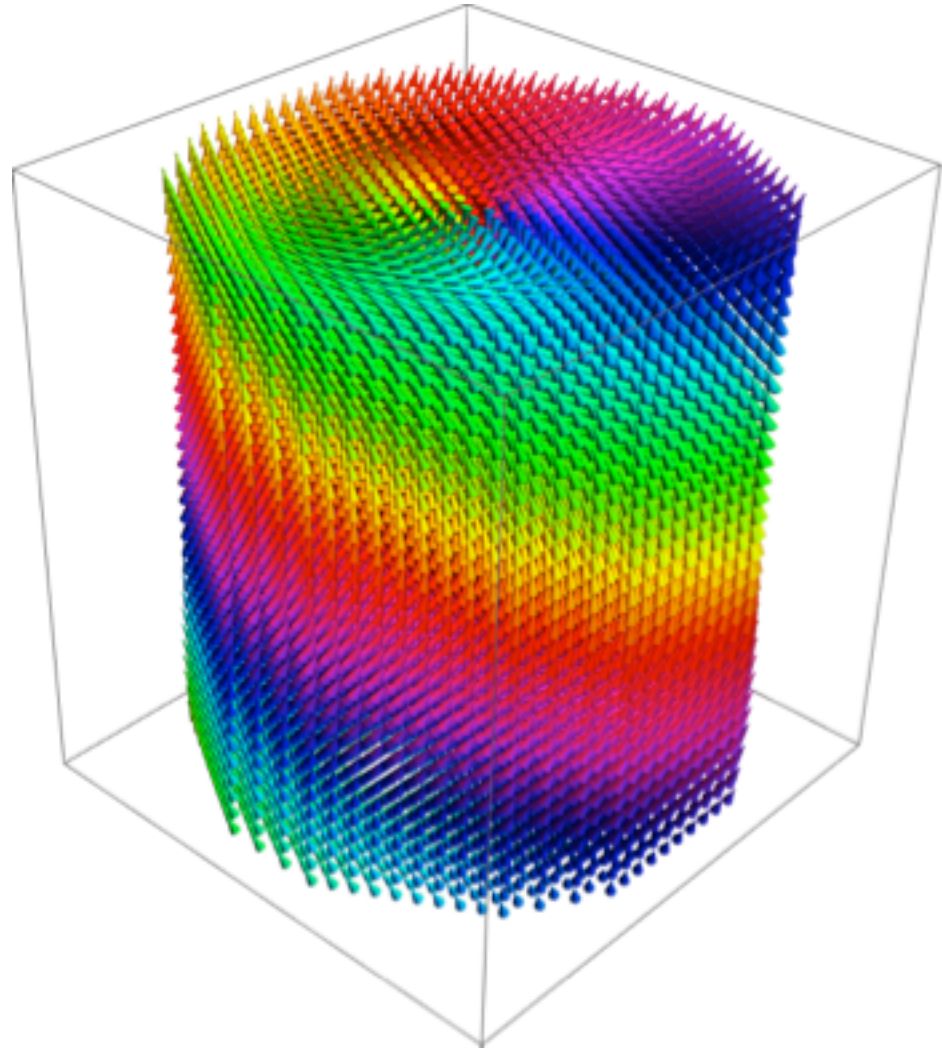
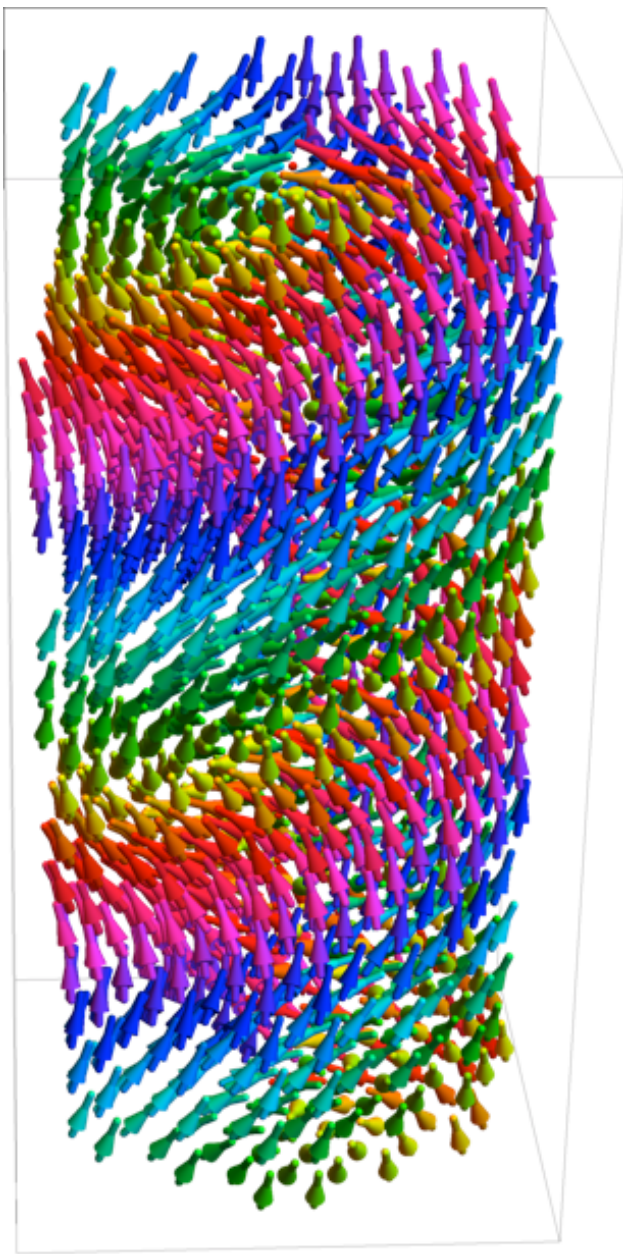


Fig. 1, (left) Vortex string induced by columnar vacancies in frustrated magnets. (right) Magnetic Hopfion induced by a loop of vacancies.

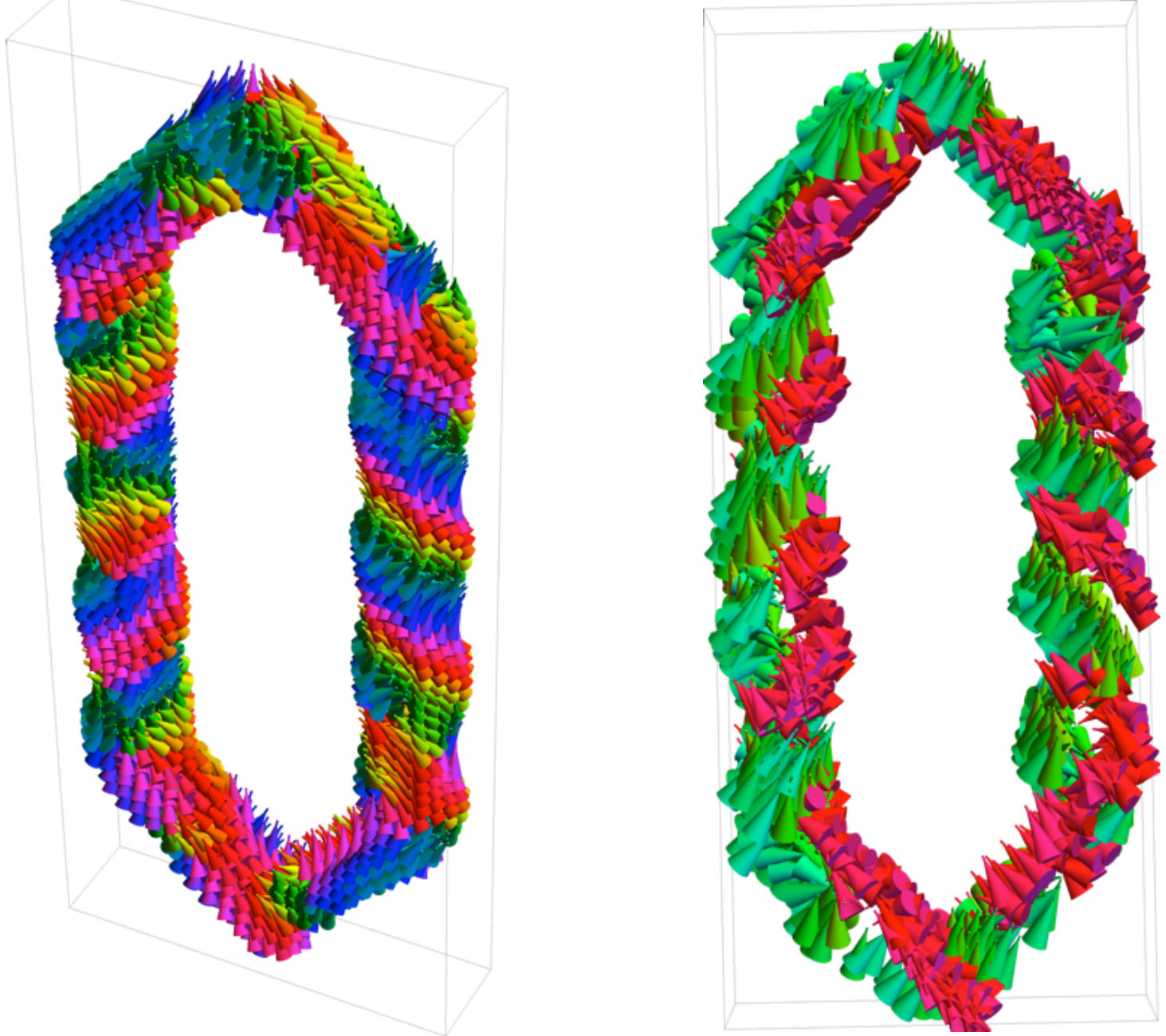


Fig. 2, Spin texture (left) and the corresponding preimages for two spin orientations (right) induced by a ring of vacancies in frustrated magnets.